



UNITED STATES PATENT AND TRADEMARK OFFICE

CR

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,763	09/22/2000	Jae-Choon Ryu	3430-0135P	8193

7590 09/10/2003

BIRCH, STEWART, KOLASCH & BIRCH, LLP  
P. O. Box 747  
Falls Church, VA 22040-0747

EXAMINER

DI GRAZIO, JEANNE A

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 09/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/667,763	<b>Applicant(s)</b> RYU ET AL.
	<b>Examiner</b> Jeanne A. Di Grazio	<b>Art Unit</b> 2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 05 June 2003.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 21-38 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 21-38 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)  The translation of the foreign language provisional application has been received.

15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_ .  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      5)  Notice of Informal Patent Application (PTO-152)  
3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s)      6)  Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

Priority to Japanese Patent Application No. 1999-41242 (Sept. 27, 1999) is claimed.

### ***Status***

Claims 1-20 have previously been cancelled by Amendment of December 17, 2002.

Claims 21-38 remain pending.

### ***Response to Arguments***

Applicant's arguments with respect to claims 21, 28, and 35 have been considered but are moot in view of the new ground(s) of rejection necessitated by Applicant's amendment.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21, 23, 28, 31, and 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Sandock (US 5,538,754) in view of Slitcoater Model CFPR R-119S (visual presentation materials from Tokyo Ohka Kegyo Co., Ltd., Coater Development Section Equipment Development Development Division, Sept. 1996).

Per claim 21 (amended), 23, 28 (amended), 31, and 35 (amended): Sandock has a process for uniformly coating substrates and the coating method is applicable to a wide variety of fluids and technologies (Col. 1, Lines 10-16; Col. 4, Lines 64-65). The Sandock invention is well suited for fabricating a uniform photoresist for an LCD (Col. 12, Lines 9-30). Specifically, Sandock has

the steps of providing a substrate on a stage, said substrate facing downwardly from a bottom-facing surface of said stage (positioning a substrate above one or more fluid applicators, Col. 4, Lines 3-4), the fluid applicator of Sandock is spaced from the substrate a distance corresponding to the desired thickness of a film (in Sandock, coating gap may vary depending on thickness of a given film, Col. 11, Lines 9-17).

It may be implied in Sandock that the material to be sprayed or extruded has a surface tension and that the surface tension is maintained (in Sandock, the fluid is applied with a controlled volume per unit surface area of the substrate for the purpose of obtaining film thickness uniformity, Col. 4, Lines 5-7). Also, Sandock notes that thickness of a fluid depends on the following factors: flow rate, percent solids, specific gravity, coating width, and coating speed (Col. 11, Lines 18-21). Flow rate, specific gravity, and coating speed relate to surface tension and if a uniform film thickness is desired, factors such as flow rate and coating speed will be maintained and thus surface tension will have to be maintained.

It may be implied in Sandock that said orientation material [is] being coated on said stage at a speed which maintains said surface tension because a controlled volume per unit area of fluid is applied to the substrate as noted.

It may be implied in Sandock that a predetermined portion of the film is patterned.

While Sandock does not appear to specify the formation of an orientation material, virtually any type of material may be applied by the Sandock process as noted (Col. 4, Lines 64-67 and Col. 5, Lines 1-2).

Sandock does not appear to specify the use of a slit coater and slit nozzle (although Sandock mentions the use of an elongate shaped, slot-shaped, fluid applicator at Col. 4, Lines

40-41). However, Applicant's IDS (Tok presentation) features the use of a nozzle system for reduction of resist consumption and high accuracy (page 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sandock in view of the Tok nozzle system for reduced resist consumption and high accuracy in forming a uniform film of uniform thickness.

Claims 22, 32-34, 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Sandock (US 5,538,754) in view of Slitcoater Model CFPR R-119S (visual presentation materials from Tokyo Ohka Kegyo Co., Ltd., Coater Development Section Equipment Development Development Division, Sept. 1996) and further in view of Matsuda et al. (US 5,046,822).

Per claims 22 and 36: Sandock does not appear to specify an orientation material thickness ranging from about 0.8 to about 1.0 micrometers; however, Matsuda has a polyimide film with a thickness of from about 10 Angstroms to about 1 micrometer (Col. 6, Lines 5-10) in part for reduced thickness of an LCD device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sandock in view of Matsuda for a reduced thickness of an overall electroluminescent device.

Per claims 32-34: Sandock does not appear to have the steps of spraying, rubbing, and rubbing after forming an orientation pattern; however, Matsuda has this sequence of steps (Col. 5, Lines 46-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sandock in view of Matsuda for a common sequence for forming an alignment film for manufacturing ease and efficiency.

Claims 24-27, 29-30, and 37-38 rejected under 35 U.S.C. 103(a) as being unpatentable over Sandock (US 5,538,754) in view of Slitcoater Model CFPR R-119S (visual presentation materials from Tokyo Ohka Kegyo Co., Ltd., Coater Development Section Equipment Development Development Division, Sept. 1996) and further in view of Takahashi et al. (US 5,879,851).

Per claims 24-27, 29-30, 37, and 38: Sago does not appear to have a laser device (eximer laser) to irradiate a laser beam and for patterning portions of an orientation material (including spraying surface); however, Takehashi has a resist film that is exposed to a pattern of a KrF laser beam by means of an eximer stepper (Col. 14, Lines 59-63) for forming patterns with high precision. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a laser / eximer laser in forming a pattern because often in patterning alignment / orientation / resist films there is a need for forming a fine pattern with high precision.

Per claims 32-34: Sago does not appear to have the steps of spraying, rubbing, and rubbing after forming an orientation pattern; however, Matsuda has this sequence of steps (Col. 5, Lines 46-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sago in view of Matsuda where this is a common sequence for forming an alignment film for manufacturing ease and efficiency.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

JDG

Robert Kim, SPE  
ROBERT J. KIM, SPE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800